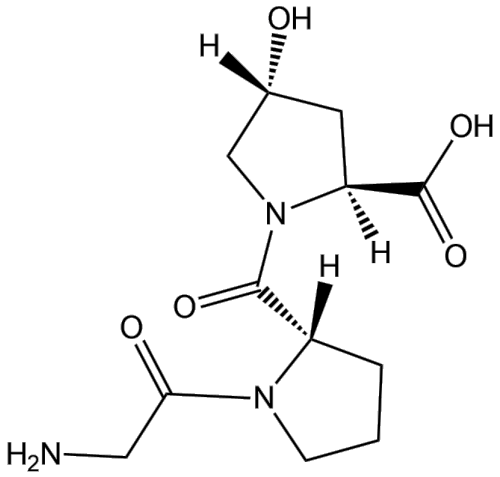
Product Data Sheet

Product Name: H-Gly-Pro-Hyp-OH
Cat. No.: GA22509

Chemical Properties

Cas. No.	2239-67-0		
Formula	$C_{12}H_{19}N_3O_5$	M.Wt	285.3
Solubility	Soluble in DMSO	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Structure



Protocol

Animal experiment [1]:

Animal models Female Kunming mice

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Preparation Method	Female Kunming mice (4 weeks old), weighing 18-22g were kept in temperature-controlled (21°C-25°C) and humidity-maintained (50%-60%) rooms with a 12-h light/dark cycle. Water and food were provided freely. All mice were acclimatized for a week before the experiments. After acclimation, the mice were randomly divided into 3 groups (n=10) as follows: (i) normal control group, UV-unexposed, (ii) UV group, (iii) H-Gly-Pro-Hyp-OH group (31.36mg/kg/day; p.o.). Except for the normal control group, the dorsal skins of mice in the other groups were irradiated with four UVA and two UVB lamps three times a week for a total of six weeks. Before each irradiation, the dorsal skin hair was removed using a shaver, followed by applying hair removal cream to the skin for thorough depilation. Appropriate cages were used to prevent mice from moving during irradiation. The irradiation intensity was measured with a radiometer to determine the minimal erythema dose (MED) and the distance between the skins and lamps was 30cm. The irradiation dose was 0.5MED/time in the first week, 1.0MED/time in the second week, and was escalated by 0.5MED/time per week until 3.0MED/time in the sixth week. All the oral administrations began 30min before irradiation. At the end of the photoaging test, the mice were sacrificed. Appropriate dorsal skin tissues were taken for histological staining.
Dosage form	31.36mg/kg/day for 6 weeks; p.o.
Applications	H-Gly-Pro-Hyp-OH treatment increased the content of elastin in the skin of aged mice exposed to UV.

References:

[1] Yang D, Liu Q, Xu Q, et al. Effects of collagen hydrolysates on UV-induced photoaging mice: Gly-Pro-Hyp as a potent anti-photoaging peptide[J]. Food & function, 2024, 15(6): 3008-3022.

Background

H-Gly-Pro-Hyp-OH is an oral collagen tripeptide with high enzyme stability and intestinal permeability [1]. H-Gly-Pro-Hyp-OH is a moderately competitive inhibitor of dipeptidylpeptidase-IV with a K ¡ value

of 4.5mM[2]. H-Gly-Pro-Hyp-OH has unique specificity for platelet Gp VI and mediates the activation of platelets by collagen [3]. H-Gly-Pro-Hyp-OH treatment inhibits the excessive growth of *S. mutans* and promotes the dominant growth of *S. oralis* Dominance [4]. H-Gly-Pro-Hyp-OH has been widely used to improve skin conditions and regulate the central nervous system [5].

In vivo, H-Gly-Pro-Hyp-OH treatment via oral administration at a dose of 31.36mg/kg/day for 6 weeks increased the content of elastin in the skin of aged mice exposed to light, and alleviated the damage to the skin structure on the back caused by chronic ultraviolet radiation[6].

References:
[1] Sontakke S B, Jung J, Piao Z, et al. Orally available collagen tripeptide: enzymatic stability, intestinal permeability, and absorption of Gly-Pro-Hyp and Pro-Hyp[J]. Journal of agricultural and food chemistry, 2016, 64(38): 7127-7133.
[2] Hatanaka T, Kawakami K, Uraji M. Inhibitory effect of collagen-derived tripeptides on dipeptidylpeptidase-IV activity[J]. Journal of enzyme inhibition and medicinal chemistry, 2014, 29(6): 823-828.
[3] Knight C G, Morton L F, Onley D J, et al. Collagen–platelet interaction: Gly-Pro-Hyp is uniquely specific for platelet Gp VI and mediates platelet activation by collagen[J]. Cardiovascular research, 1999, 41(2): 450-457.
[4] Jung H Y, Cai J N, Yoo S C, et al. Collagen peptide in a combinatorial treatment with Lactobacillus rhamnosus inhibits the cariogenic properties of Streptococcus mutans: An in vitro study[J]. International Journal of Molecular Sciences, 2022, 23(3): 1860.
[5] Hatanaka T, Kawakami K, Uraji M. Inhibitory effect of collagen-derived tripeptides on dipeptidylpeptidase-IV activity[J]. Journal of enzyme inhibition and medicinal chemistry, 2014, 29(6): 823-828.
[6] Yang D, Liu Q, Xu Q, et al. Effects of collagen hydrolysates on UV-induced photoaging mice: Gly-Pro-Hyp as a potent anti-photoaging peptide[J]. Food & function, 2024, 15(6): 3008-3022.